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In re Patent Application of
WALDEMAR RUEDIGER, et al.

Serial No. 10/057,451

Filed: January 25, 2002

For: PARALLEL CHEMISTRY REACTOR
WITH INTERCHANGEABLE
CARRYING INSERTS

Examiner: Elizabeth S. Quan

Art Unit: 1743
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DECLARATION OF WALTER RUEDIGER UNDER 37 C.F.R. 1.132

WALTER RUEDIGER deposes and states as follows:

1. I am currently, and have been since April 1995, employed by the Bristol-Myers Squibb Company, the owner of the above application, as a mechanical engineer.
2. I am one of the inventors of the reactor that is the subject of the above application and one of the applicants thereof.
3. My work at Bristol-Myers Squibb Company involves, among other things, designing and fabricating precision instruments such as the reactor that is the subject of the above application and parts for such instruments.

4. Prior to my employment with Bristol-Myers Squibb Company, I worked at various jobs, including as the supervisor of a production line manufacturing medical devices, a shop foreman in a machine shop fabricating precision parts, and as a tool and die maker.

5. I submit this declaration to address two issues raised in the Office Action dated June 9, 2004, namely: whether the inserts of the reactor can be received in the base in more than a single orientation; and whether it would be obvious to one skilled in the art of reactor design to make the sidewall of the insert, and the wall of the insert-receiving opening in the base, with corresponding inclinations of approximately 1 degree.

6. With regard to whether the inserts can be received in the base in only a single orientation, the insert interchangeability feature of the reactor depends upon the inserts being received in the base in only a single orientation. It is necessary that the different number and size reaction vessels in each of the interchangeable inserts properly align with the liquid dispensers in the automated liquid handler. If the inserts could be received in the base in different orientations, at least some of the reaction vessels in some of the insert arrays would not align properly with the liquid dispensers in the automated liquid handler and therefore could not receive the substances necessary to carry out the reactions.

7. We specifically engineered the corners of the insert, and the corners of the base opening, so that the inserts can be received in the opening in the base in only one rotational orientation in the plane of the base.

8. We did this by fabricating the corners with sufficiently different radii such that the inserts could fit into the base opening in only one rotational orientation. An insert not in the required rotational orientation will not seat properly in the base opening.

9. In the embodiment described in the application, this was done by having each corner in each of the pairs of opposite corners of the insert have different radii. Specifically, one corner in each opposite pair was fabricated to have a radius of .250 inches and the other corner of each opposite pair was fabricated to have a radius of .375 inches. However, all that is necessary to prevent the inserts from being received in the base opening in different rotational orientations is that at least one of the pairs of opposite insert corners have different radii.

10. To suggest that the single orientation language used in the specification and claims could be properly construed by one skilled in this art to mean that the insert could be received in an inverted position in the base opening is to ignore the knowledge of those skilled in the art.

11. Inverting the insert with the reaction vessels in it would cause the reaction vessels to fall out of the insert wells. It would also cause the liquid contents of the reaction vessels to spill out. No person familiar with this type of reactor would consider that as a reasonable thing to do.

12. In any case, the outstanding lip on the top edge of the insert would prevent the insert from being received upside down in the base opening. Also, the inclination of the insert sidewall, and corresponding inclination of the wall of the base opening, would not permit the insert to properly seat upside down in the base opening.

13. To interpret the single orientation language to mean that the inserts can be received in the base only through the top of the base opening is to ignore how one skilled in the art would interpret that language. The specification as a whole, particularly the text set forth on page 18, taken together with the figures, could not be interpreted by one skilled in the art in that manner. Such a person would literally have to ignore everything that he or she knows about these types of reactors to come to that conclusion because reactor inserts are always received in the reactor base by inserting through the top of the opening of the base, from above. If the inserts were received

through the bottom of the opening in the base from below, they would fall out of the opening when the base was lifted.

Individuals skilled in this art are sophisticated engineers with extensive experience in designing and fabricating precision instruments. They simply would not consider that interpretation as even being a possibility.

14. Fabricating the insert sidewall and the wall defining the opening in the base with corresponding inclinations of approximately 1 degree is achieved at substantial expense to accomplish a specific purpose. It is an important feature of the invention, because the bottoms of the reaction vessels must sometimes be heated through the base, that there be close contact between the entire surface of the sidewall of the insert and the entire surface of the wall defining the opening in the base such that thermal transmission between those surfaces is maximized. If the walls were vertical, and the insert fit tightly into the base opening to maximize contact between the surfaces, the resulting frictional engagement between the insert and base surfaces would make it difficult to remove the insert with applying a great amount of force. Loosing the fit by making the insert slightly smaller than the opening would eliminate the removal problem, but the gap between the surfaces would substantially decrease the heat transfer.

15. Our solution to that problem was to fabricate the walls in precision manner with a corresponding, very slight, inclination that permits maximum surface contact, and hence thermal transmission, between the walls and at the same time, permits easy removal of the insert from the base. Simply because our solution is simple and elegant, does not mean that it is obvious to one skilled in the art.

The undersigned, WALTER RUEDIGER, being duly warned that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of

Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the above application or any patent resulting therefrom, declares that all statements made herein of his own knowledge are true and that all statements made herein on information and belief are believed to be true.

Dated: 09-13-2004

By: Walter Ruediger

Walter Ruediger